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Agency / Organization

National Transportation Safety Board

Title

Investigator-in-Charge Video Paulsboro, NJ Hazardous Materials Emergency Response

Video Presentation

Conrail Train Derailment with Hazardous Materials Release

Emergency Response Sequence of Events

Paulsboro, New Jersey
November 30, 2012
DCA13MR002

This animation is a shelf item and may be obtained by contacting:
National Transportation Safety Board
Records Management Division (CIO-40)
490 L'Enfant Plaza, SW
Washington, DC 20594
(202) 314-6551
800-877-6799
Online request: http://www.ntsb.gov/pubmail/pubmail.aspx
This animation is also available on the NTSB website: http://www.ntsb.gov

This video presentation is a graphical representation of the sequence of events of the emergency response to the Conrail train derailment with hazardous materials release in Paulsboro, New Jersey on November 30, 2012. This sequence of events begins at the time of the derailment at 6:59 am and runs through 8:33 am when there is confirmation that the emergency responders were being exposed to vinyl chloride concentrations that exceeded permissible or safe levels. The right side of the screen displays the time with text describing the event taking place. The left side of the screen displays a series of graphics, photographs and videos depicting a visual representation of the event taking place. The photos and videos shown are illustrative of the events on the morning of the derailment, but may have been taken at an earlier or later time than the time in the sequence displayed on the screen. This presentation contains audio.

The presentation begins with a Google satellite image of the derailment area in Paulsboro, New Jersey. The locations of the derailment (6:59 am), the 911 call (7:01 am) and the first responding officer (7:06 am) are notated. A photograph of the accident is also shown. The view then transitions to a photograph of the accident scene with emergency responders and the vapor cloud when the Hazardous Materials teams are called in at (7:07 am). A photograph showing the placard on the tank car is then displayed with an inset of the placard with the text vinyl chloride. The view transitions back to the photograph of the accident scene with emergency responders and the vapor cloud with an inset of the cover of the "2012 Emergency Response Guidebook" and text overlay that reiterates the narration (7:09 am). The next sequence returns to a Google satellite image showing more of the area surrounding the accident scene in Paulsboro, New Jersey. The accident site is notated as well as the command post (7:17 am). Video of emergency responders at the command post is shown as well as a photograph of a police officer and the fire chief with other emergency responders. The

mandatory evacuation area is highlighted on the Google satellite image (7:26 am). Two video clips taken from a news helicopter are shown while the police and the fire department get conflicting reports on the dangers of vinyl chloride (7:29 am). A photograph of the vapors obscuring the accident scene is shown with a graphic overlay of the vinyl chloride placard with text overlay that reiterates the narration of the hazards of vinyl chloride (7:29 am). Video footage along with two photographs are shown of the railroad workers inspecting the railcars (7:40 am). This presentation ends with aerial video footage of the vapor cloud over the accident site and the command post (8:33 am).

Timeline text on right side of screen:

6:59 Derailment
7:01 911 Call
7:06 Report of dangerous chemicals
7:07 Hazmat teams called in
7:09 Tank car placard identified
7:17 Command post set up
7:26 Evacuation ordered
7:28 Hazmat team arrives
7:29 Police report spill is not toxic
7:29 Fire Dept. confirms hazards of vinyl chloride
7:40 Tank cars inspected
8:33 Exposure to vinyl chloride confirmed

Photos used (in order of appearance):

Time taken	File name	Description
8:00 am	DSC00431.jpg	accident scene with vapor cloud
7:44 am	DSC00429.jpg	emergency responders, accident scene & vapor cloud
7:12 am	DSC00424.jpg	tank car with placard
7:44 am	DSC00429.jpg	emergency responders, accident scene & vapor cloud
9:17 am	DSC00436.jpg	police officer, fire chief & other responders at command post
8:00 am	DSC00430.jpg	background image of vapors & accident scene
10:49 am	DSC00442.jpg	RR workers in boat
10:55 am	DSC00443.jpg	RR workers

Video footage used (in order of appearance):
Source: Philadelphia CBS Channel 3

Time taken	Description
8:45 am	responders at command post
7:59 am	aerial of accident scene

7:59 am aerial of accident scene
8:55 am RR workers
8:29 am aerial of accident scene, command post and vapor cloud

Narration:

1. The train derailed at 6:59 am, and the emergency response began almost immediately thereafter.
2. At 7:01 am, the Gloucester County Emergency Response Center received a 911 call from the Paulsboro Deputy Fire Chief, who lived next to the accident scene.
3. The Deputy Fire Chief stated that the train had derailed and a punctured tank car was leaking into the water and emitting gas.
4. He said the creek was full of vapor from the leaking tank car.
5. At 7:06 am, the first responding Police Officer reported that the train crew told him the chemicals being shipped were potentially life threatening.
6. At 7:07 am, the Fire Chief requested assistance from 2 Hazardous Materials teams, one from Gloucester County, and one from the Paulsboro Refining Company.
7. Hazardous materials teams are supposed to help the incident commander assess the risks of a chemical release.
8. They are required to wear protective gear when entering the contaminated area or hotzone.
9. At 7:09 am, the Deputy Fire Chief reported that he could see a placard showing the number 1086 attached to a leaking tank car.
10. The Fire Dispatcher responded that placard number 1086 signifies vinyl chloride, a highly flammable and toxic material.
11. For a large spill of vinyl chloride, the Emergency Response Guidebook recommends an initial downwind evacuation of at least one-half mile.
12. The Guidebook also instructs first responders to stay clear of vapors, fumes and smoke.
13. At 7:17 am, the Fire Chief arrived on scene and assumed the role of incident commander and set up the command post in an open field 50 yards from the accident scene.
14. The command post is supposed to be located in a safe area outside of the hot zone.
15. OSHA standards require the incident commander to identify all hazardous substances, exercise scene control, and assure that appropriate personal protective equipment is used.
16. When inhalation hazards are present, self-contained breathing apparatus is required until air monitoring shows that hazardous exposures will not occur.
17. Firefighters who responded to this accident did not wear their self-contained breathing apparatus.

18. Although police and fire department communications remained on separate radio frequencies, a police sergeant was present with the Fire Chief at the command post to coordinate the activity of the police department with that of the fire department.
19. At 7:26 am, the Police ordered a mandatory evacuation of a 3 block area.
20. Several police officers who were evacuating residents reported they entered the chemical cloud without wearing respiratory protection.
21. At 7:28 am, a half-hour after the derailment, a member of the Paulsboro Refining Hazardous Materials Team arrived on-scene to provide hazardous materials response guidance to the Fire Chief.
22. At 7:29 am, a Police Sergeant at the incident command post radioed a change in evacuation orders to shelter-in-place, stating that the fog was just a reaction to the spill and was not toxic.
23. Residents were instructed to stay inside with the windows closed.
24. At 7:29 am the Fire Chief requested the Fire Dispatcher to provide a synopsis of the hazards of vinyl chloride.
25. Contrary to the Police Department statement that the chemical was non-toxic, the Fire Dispatcher radioed the Fire Chief that vinyl chloride is a highly flammable, reactive chemical, and is an explosion hazard.
26. The Fire Dispatcher went on to report that contact with vinyl chloride can severely irritate and burn the eyes, and respiratory system.
27. Exposure can cause shortness of breath, nausea, confusion, and loss of consciousness.
28. It can also cause damage to the liver, nervous and respiratory systems.
29. Even though the Fire Chief had received this information about the hazards of vinyl chloride, the police continued to report the material was non-toxic.
30. From 7:40 am and throughout the morning, railroad workers walked onto the bridge and inspected the derailed tank cars.
31. Rail workers are subject to the same safety standards for hotzone entry as are emergency response personnel, and must coordinate their activities with the incident commander.
32. These railroad workers did not wear respiratory protection or chemical protective equipment.
33. At 8:33 am, an hour and a half after the derailment, the Paulsboro Refining Hazardous Materials Team air monitoring data showed that the first responders were being exposed to vinyl chloride concentrations that significantly exceeded permissible or safe levels.
34. Continued air monitoring throughout the morning found unsafe levels of vinyl chloride, yet emergency responders still did not use respiratory protection.